Claims

1. A cylinder lock and key combination comprising:

~~a~~ lock body,

a turnable lock cylinder located inside the lock body and having an axial slot,

a set of code locking discs located inside the lock cylinder, each locking disc having at least one peripheral notch and a key opening and being turnable in the lock body in a first turning direction by application of turning force to a counter surface bounding the key opening, each locking disc having an opening position in which its peripheral notch is at the position of the axial slot in the lock cylinder, such that when all the locking discs are in their respective opening positions the peripheral notches form a uniform channel at the position of the axial slot, the key opening of at least one code locking disc being bounded by at least two discrete counter surfaces,

a locking bar having a locking position in which it prevents turning of the cylinder relative to the lock body and a releasing position in which it is received in the channel formed by the peripheral notches of the locking discs and releases the cylinder for turning relative to the lock body, and

a key insertable in the lock when the locking discs are at an initial position, the key having a set of combination surfaces corresponding respectively to the locking discs, for engaging a counter surface of each locking disc and applying turning force thereto when the key is inserted in the lock and is turned in the first turning direction, so that the locking discs are turned in the first turning direction to their respective opening positions,

and wherein the combination surface corresponding to said one code locking disc can be provided selectively with one of at least two combination values, whereby the combination surface engages a selected one of the discrete counter surfaces for applying turning force in the first turning direction to said one code locking disc.

2. A cylinder lock and key combination according to claim 1, wherein the key opening of said one locking disc has first and second discrete counter surfaces for engagement selectively by the combination surface corresponding to said one locking disc for turning said one locking disc in the first turning direction, and the first and second discrete counter surfaces are arranged at a distance from each other and are located at different respective angles with regard to a central axis (D) of the key opening of said one locking disc.

3. A cylinder lock and key combination according to claim 2, wherein the mutual angular pitch of the first and second discrete counter surfaces is about 30°.

4. A cylinder lock and key combination according to claim 1, wherein a first of said discrete counter surfaces corresponds to a smaller turning angle of the key and a second of said discrete counter surfaces corresponds to a larger turning angle and the second counter surface extends substantially to the central normal (E) of the central axis (D) of the key opening.

5. A cylinder lock and key combination according to claim 1, wherein the key openings of the code locking discs are at least substantially identical and formed so that the combination surfaces of the key engage the respective counter surfaces of the corresponding locking discs only after the key has been turned through a selected angle from the initial insertion position of the key.

6. A cylinder lock and key combination according claim 5, wherein said selected angle is about 15°.

7. A cylinder lock and key combination according claim 1, further comprising at least one lifting 0-locking disc having a key opening smaller than the key openings of the code locking discs.

8. A cylinder lock and key combination according claim 1, wherein the lock is operable in only one turning direction and the key opening of said one locking disc is bounded by a return surface which cooperates with the key to return said one locking disc to a locking position when the key is turned in a second turning direction, opposite said first turning direction, the return surface being opposite to the counter surfaces with regard to the central axis of said one locking disc.

9. A cylinder lock and key combination according to claim 8, wherein said return surface is aligned with one of the counter surfaces of said one locking disc.

10. A cylinder lock and key combination according to claim 1, wherein the lock is operable in two turning directions and each locking disc is turnable in a second turning direction, opposite the first turning direction, by application of turning force to a counter surface bounding the key opening, the key has a second set of combination surfaces for engaging a counter surface of each locking disc when the key is turned in the second turning direction, the key opening of said one locking disc is bounded by third and fourth discrete counter surfaces for engagement selectively by a combination surface of the second set, and the combination surface of the second set corresponding to said one locking disc is provided selectively with one of at least two combination values.

11. A cylinder lock and key combination according to claim 10, wherein said one locking disc has fifth and sixth counter surfaces and seventh and eighth counter surfaces, the counter surfaces serving for the same turning direction being located in pairs diametrically on either side of the turning axis (D') of said one locking disc.

12. A key blank of a key for a combination according to claim 1, wherein the basic form of a shank of the key blank

E1 in the perpendicular cross-sectional plane of the shank, exclusive of any possible profile grooves or corresponding grooves extending over the shank of the key, is substantially rectangular except for at least one bevel surface for providing at least one combination surface at at least one corner.

13. A key blank according to claim 12, wherein said bevel surface includes two combination surfaces with different combination values.

E1 14. A key blank according to claim 12, wherein the rectangular cross section of the shank has a longer side and a shorter side and the shank has a central cross-sectional plane parallel to the longer side of the rectangular cross section and said bevel surface is inclined to said central cross-sectional plane at an angle of 20°-30°, preferably an angle of about 25°.

15. A key blank according to claim 12, wherein said bevel surface is divided into two parts extending mutually in different directions and each of which forms one combination surface.

16. A key blank according to claim 12, wherein said bevel surface is divided into two at least substantially parallel parts separated from each other by a step or the like and each forming one combination surface.

17. A key blank according to claim 12, wherein the shank of the key blank is symmetrical with regard to the central axis of the shank.

18. A key blank according to claim 12, wherein the rectangular cross section of the shank has a longer side and a shorter side, the shank has a central axis (B) parallel to the longer side of the rectangular cross section, and the

shank of the key blank is symmetrical with regard to both the central axis (B) and its central normal (C).

19. A key blank according to claim 12, wherein when the key blank is intended for a lock operable only in one turning direction the bevel surface of every second corner of the shank is arranged to operate as a return surface for the locking discs.

20. A key for a combination according to claim 1, wherein the basic form of a shank of the key in the perpendicular cross-sectional plane of the shank, exclusive of any possible profile grooves or corresponding grooves extending over the shank of the key, is substantially rectangular except for at least one bevel surface for providing combination surfaces corresponding to the code locking discs, said one bevel surface provides at least one selectable combination surface, and the value of any other combination surface is determined on the basis of the combination of the angle of the cut and the length of the cut surface of the cuts to be made in said one bevel surface.

21. A key according to claim 20, wherein said one bevel surface comprises two combination surfaces having different combination values.

22. A key according to claim 20, wherein the angular pitch between cuts corresponding to successive combination values is about 15°.

23. A key according to claim 20, wherein the length of the cut surfaces corresponding to different combination values is determined so that the extreme ends thereof are located at most on three different peripheral surfaces measured from the central axis (A) of the shank of the key.

24. A key according to claim 23, wherein the extreme ends of the cut surfaces providing for turning movement for

the locking discs and corresponding to different combination values are located on two different peripheral surfaces measured from the central axis (A) of the shank of the key.

25. A key according to claim 23, wherein the combination surfaces of the key extending to the same peripheral surface are located mutually with equal pitch.

26. A key according to claim 20, wherein the combination cuts diametrically opposite each other with regard to the central axis (A) of the shank of the key are symmetrical.

27. A key according to claim 20, wherein the key has four cut surfaces for each code locking disc and the combination cuts located diametrically opposite each other with regard to the central axis (A) of the shank of the key are identical.

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